17.    A method for performing a laser surgical procedure on a tissue in a highly localized manner, said method comprising the steps of:

generating a pump beam having a wavelength ranging approximately from 1.0 to 1.1μm,

passing said pump beam through a nonlinear crystal to parametrically convert the pump beam into an idler beam and a signal beam, said idler beam having a wavelength in the mid-infrared range corresponding approximately to an absorption peak of said tissue; and

directing said idler beam onto said tissue to remove portions of said tissue with a thermal damage zone of less than 2μm primarily by a photo-mechanical ablation process.

18.    The method according to claim 17, wherein the step of generating the pump beam is performed by a neodymium-doped laser.

19.    The method according to claim 17, wherein the step of generating the pump beam produces said pump beam with a pulse duration of approximately 25 to 50 ns, a repetition rate of approximately 10 to 50 Hz and a transverse mode structure consisting of single or multiple modes, and the idler beam has an energy output of approximately 5 to 30 mJ.

21.    The method according to claim 17, further comprising the step of rotating the nonlinear crystal at least one of three principal axes.

26.    The method according to claim 17, wherein said portions of said tissue are corneal tissue.

27.    The method according to claim 26, wherein said surgical procedure is a PRK technique based on a photospallation mechanism.

28.    The method according to claim 17, wherein said directing means includes three mirrors comprising an "L shaped" arrangement for reducing fluence, thereby reducing a probability of damage.

33.    The method according to claim 32, wherein the step of generating the pump beam is performed by a neodymium-doped laser.

36.    The method according to claim 32, further comprising the step of rotating the nonlinear crystal about three principal axes.

39.    The method according to claim 32, wherein said idler beam has energy output of at least 1 mJ but not more than approximately 30 mJ.

41.    The method according to claim 32, wherein said portions of said tissue are corneal tissue.